3.7 Complete a pie chart showing how the retail dollar is spent by the retailer.
3.8 Compute an inventory value using an adding machine.
3.9 Correct math papers of other students.
3.10 Compute sales tax.
3.11 Predict the selling price from cost and markup.
3.12 Prepare profit and loss statements.

4. The student will possess the ability to analyze and evaluate situations in retail arithmetic when he is able to:

4.1 Infer that markdowns add to the cost of doing business.
4.2 Infer that high stock turn increases profit.
4.3 Detect that the aim of all stores is to sell merchandise that customers want at a price they wish to pay.
4.4 Assess the applicability of using multiplication as a short cut to addition.
4.5 Evaluate the desirability of using markdowns as a method of moving goods.
4.6 Select the way which best shows profit or loss.
4.7 Analyze a profit and loss statement.
4.8 Determine ways to increase profit.

5. The student will demonstrate skill in retail arithmetic when he is able to:

5.1 Ring up thirty-five items on the cash register without error in a specified time.
5.2 Use fractions instead of percentages or decimals in figuring discounts, markdowns or markups.
5.3 Demonstrate the ability to estimate answers.
5.4 Use weight and measure devices to determine the amount of goods and total price.

6. The student will have proper attitudes about retail arithmetic when he:

6.1 Demonstrates a critical attitude toward public statements regarding profits.
6.2 Exhibits an open mind in discussing profit.
6.3 Uses class time wisely.

Selected Content

I. Importance of Arithmetic in Store Selling

II. Addition and Subtraction

III. Multiplication and Division

IV. Fractions and Decimals

V. Percentages

VI. Pricing Merchandise

VII. Figuring Markdowns and Discounts

VIII. Figuring Stock Sums

IX. Profit and Loss

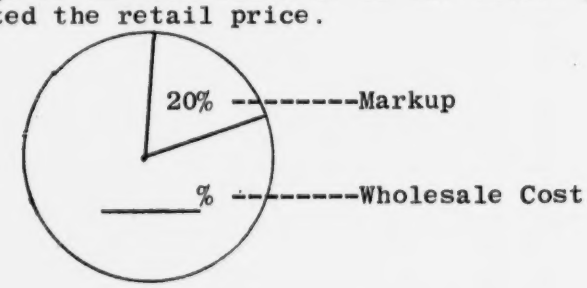
Table of Specifications

Content	1. Knowledge	2. Understanding	3. Application	4. Analysis	5. Skills	6. Attitudes
A. Importance of Arithmetic in Store Selling	1	1	1		2	
B. Addition and Subtraction	2	2	2			
C. Multiplication and Division	2			1		
D. Fractions and Decimals	2	1				
E. Percentages	2		1		2	1
F. Pricing Merchandise	3	1	1	1	1	
G. Figuring Markdowns and Discounts	3	1		2		2
H. Figuring Stock Items	2			1		1
I. Profit and Loss	3		1			2
Total Questions	20	6	6	5	5	6
Percent of Questions	42%	12%	12%	11%	11%	12%

Illustrative Test Items

Table of Specifications Reference

3F 1. Fill in the Pie Chart to show what the wholesale percentage of an item would be if the entire pie represented the retail price.



2D 2. Fifteen percent expressed as a decimal is:

A. .015
B. .0015
C. .15
D. 1.50

2B 3. In the following problem, the minuend is:

$$\begin{array}{r} 239 \\ -76 \\ \hline 163 \end{array}$$

A. 239
B. 76
C. 163
D. none of the above

3B 4. By combining each number combination whose sum is ten, and counting these as single numbers, how many numbers will you need to add to come up with the answer to the following problem:

$$\begin{array}{r} 5 \\ 6 \\ 5 \\ 4 \\ 7 \\ +\ 3 \\ \hline 30 \end{array}$$

A. 2
B. 3
C. 4
D. 5

2B 5. Subtraction can be checked by adding the subtrahend and the difference to obtain the minuend. The minuend in the following problem is:

$$\begin{array}{r} ? \\ -31 \\ \hline 40 \end{array}$$

A. 9
B. 71
C. 1240
D. none of the above

2F 6. In your own words, distinguish between cost price and selling price.

4G 7. Which of the following situations helps to bear out the inference that markdowns add to the cost of doing business?

A. Jones' Pen Company decided to up the price of its pens because they are not selling well.
B. Bill's Cap Company decided to cut back on the production of caps because of increased consumer demand.
C. Jim's Golf Ball Company decided to reduce the price of golf balls to reduce its overstocked inventory.

4C 8-10. You sold the following: 40 items at 45¢ each
40 items at 50¢ each
40 items at 55¢ each

Three people were asked to compute the total price of the above items:

(1) Bill added 40 items at 45¢ each, 40 items at 50¢ each, and 40 items at 55¢ each, and arrived at a total;
(2) Joe multiplied 40 by 45¢, 40 by 50¢, and 40 by 55¢, and added the three totals together;
(3) Sally multiplied 120 by 50 and said that was the total price.

8. Which of the above student(s) arrived at the correct answer?

9. Which of the above students computed the answer in the most efficient (and correct) manner?

10. Which method was least efficient to compute?

4I 11. Joe's sporting goods store sells one canoe a year. The canoe sells for $100, and Joe's profit is $20. Which of the following methods of reporting Joe's profit on canoes would most accurately describe Joe's canoe business to a prospective buyer of his store?

A. Joe makes $20 a year on canoes.
B. Joe makes 20% profit on canoes.
C. Both A. and B.

CHAPTER V

SUMMARY

The original purpose of this study was to improve the evaluation proficiencies of high school distributive education teachers in the state of Virginia. The implementation of the purpose was to be through the medium of a conference for selected participants.

During the conference, participants received instruction in the preparation of evaluation units for the distributive education program. Participants constructed evaluation units in areas of their preference after having received instruction on this subject. An evaluation unit consisted of the following: educational objectives, stated behaviorally; a subject matter outline; a table of specifications; and test items written at various levels of cognition.

Included in the overall study was the provision for an evaluation of the success of a conference of this type. The original plan for experimental and control groups was thwarted because of a lack of available participants. Therefore, the evaluation plan was altered.

Basically, the evaluation of the success of the conference was based on three sources of data:

1. A comparison between pre-test and post-test cognitive abilities in principles of evaluation as determined by the difference in pre- and post-test scores on a test of educational evaluation. The purpose of this was to determine whether or not the cognitive abilities of the participants were raised as a result of their conference participation.

2. An investigation of the degree to which participants implemented their newly-acquired ability in principles of evaluation in their actual school settings. This was measured by comparing the tests of participants prior to the conference with their tests constructed after the conference.

3. The construction of evaluation units in selected areas of the distributive education program.

Results of the conference were favorable for all three of the above criteria. With respect to the first two criteria, cognitive abilities and implementation of newly-acquired ability in evaluation, the participants showed statistically significant

improvement after they had received instruction regarding evaluation. On the latter criteria, evaluation units, it was the judgment of the researchers that the participants had successfully constructed appropriate units according to the framework in which instruction was given and to the subject content of the distributive education program.

Based upon the findings of this study, it is recommended that conferences of this type be viewed as worthwhile ventures for the various vocational education service areas to undertake in order to improve the evaluation abilities of teachers in their respective fields.

APPENDIX A

Measurement Test

Instructions to the student:

1. Select the alternative which represents the Best Answer.
2. Mark the letter of the alternative on the answer sheet.
3. Answer all questions; there is no penalty for guessing.
4. Do not mark on the test booklet.

1. What is the major argument for using unstructured essay exercises in tests given during instruction?

   A. Unstructured exercises insure that students attack the same problems.
   B. Teacher insights with reference to student thought patterns and attitudes are promoted.
   C. Course marks are more valid measures of student ability.
   D. Such exercises best stimulate students to write well-organized essay answers.

2. How reliably can answers to essay questions be evaluated?

   A. It is impossible to evaluate them reliably enough to justify the use of this form.
   B. Under certain conditions they can be evaluated reliably, but the process is likely to be difficult and costly.
   C. They can be evaluated reliably with great ease if certain simple precautions are observed.
   D. They are ordinarily evaluated with as much reliability as are objective tests.

3. Which of the following types of items is well adapted to evaluating student knowledge of numerous technical terms?

   A. True-false.
   B. Multiple-choice.
   C. Matching.
   D. Analogy.

4. The term objective, when used to label an educational test, describes

   A. a characteristic of the scoring process.
   B. a typographic feature of the test.
   C. the degree of standardization of the test.
   D. the content limitations of the questions.

5. Sue answered correctly 25 out of 50 items on an arithmetic test. What interpretation can be made of Sue's performance on the test?

   A. Sue placed at the 50th percentile.
   B. Sue needs remedial work in arithmetic.
   C. Sue knows about one-half of the material in arithmetic taught in her grade.
   D. No interpretation of the score is possible on the basis of the information given.

6. Problems arise in attempting to develop measures of ultimate goals mainly because

   A. measurement methods have not given proper weight to all goals.
   B. teachers have been reluctant to depart from traditional testing methods.
   C. group norms with which to compare results are not available.
   D. such goals concern behavior not usually observable under classroom conditions.

7. "Washington, D.C., is the most important city in the United States." Why is this a poor true-false item?

   A. It is ambiguous.
   B. It is too easy.
   C. It is too brief.
   D. It is too factual.

8. "Philadelphia was the capitol and largest city in the United States for a number of years." Why is this a poor true-false item?

   A. It is ambiguous.
   B. It involves more than one idea.
   C. It does not have a good answer.
   D. It is too long.

9. "In the United States, _____ are elected for _____ and _____ for _____." What would be the best way to revise this item?

   A. Replace the first blank by "senators" and the third blank by "representatives".
   B. Insert the word "years" after the second and fourth blanks.
   C. Insert the work "all" before the first and third blanks.
   D. Make changes A. and B.

10. At the end of the semester a history teacher gave his pupils an essay test on the material covered during the preceding weeks. When he graded the papers he deducted points from the total score for spelling, grammar and English usage. In so doing, he

A. increased the accuracy of his final grades.
B. increased the objectivity of measurement.
C. lowered the reliability of the test.
D. lowered the validity of the test.

11. Objective test exercises are most likely to measure the ability of the pupils to reason if the exercises

A. are of the recall rather than of the recognition type.
B. are similar in form to intelligence test exercises.
C. are of the multiple-answer rather than the true-false type.
D. require application of facts to a novel situation or problem.

12. The use of the normal curve as a basis for assigning school marks is most legitimate when

A. a standardized test is used.
B. all of the pupils have approximately the same I.Q.
C. the marks are to be assigned to a large and representative group of pupils.
D. the average pupil scores 85 on the test used.

13. The most important advantage of the objective test over the essay test is that it

A. saves time for the teacher.
B. has higher content validity.
C. measures a greater range of instructional objectives.
D. provides for a more complete sampling of content.

14. In the scoring of essay examinations, all the following are generally considered desirable practices except to

A. reduce the mark for poor spelling or penmanship.
B. prepare a scoring key and standards in advance.
C. remove or cover pupils' names from the papers.
D. score one question on all papers before going to the next.

15. "Columbus discovered America in _____." The best change to make in revising this item would be to rewrite it so as to read

A. "America was discovered by Columbus in _____."
B. "Columbus discovered _____ in _____."
C. "Columbus discovered America in the year of _____."
D. "_____ was discovered by Columbus in _____."

16. In which way are teacher-made tests superior to standardized tests?

A. They are more reliable for evaluating differences among very poor and very good students.
B. They provide more valid measures of the teacher's specific objectives.
C. They provide more valid measures of the student's grasp of important facts and principles.
D. They are simpler to administer and score.

17. Measurement specialists would generally consider the practice of allowing a choice in the questions to be answered on an essay examination

A. desirable, because it gives each student a fairer chance.
B. desirable, because it permits a wider sampling of the topics covered.
C. undesirable, because it reduces the comparability of the test from student to student.
D. undesirable, because students waste too much time deciding which question to answer.

18. A science teacher is preparing a test to be used to determine knowledge of specifics from a unit of study. He should use objective rather than essay questions because they

A. avoid ambiguity, the most common fault of test questions.
B. provide a wider sampling of material.
C. are not affected by the judgment of the tester.
D. are best suited to his purpose.

19. One of the merits of arranging test items in an order of difficulty is that

A. it insures an accurate measure of consistency.
B. it encourages the pupil taking the test to continue.
C. item validity is to some extent dependent on difficulty.
D. this procedure contributes to the test's reliability.

20. Which of the following statements is <u>most</u> true for tests that are used in the educational setting?

A. They are about as accurate as measurements obtained in the physical sciences.
B. One test question requires as much knowledge to answer as any other test question.
C. They can give a fair indication of how one student stands in relation to another student.
D. They are practically worthless.

21. An educational goal is "being a good consumer." Which of these illustrations best expresses this goal in terms of behavior?

A. To get good value for one's money.
B. To purchase items by comparing weight and volume.
C. To act in accord with economic principles.
D. To be prudent in handling money.

22. - 25. An objective of a history teacher is "that the students understand the Civil War." While this objective is poorly stated, it is possible to write test items for the objective. Mark A for the items that are appropriate for measuring "understanding the Civil War" and B for the items that are not appropriate.

22. Name 5 Generals in the Confederate Army.

23. Who's point of view would Barry Goldwater have espoused?

24. North is to South as Lincoln is to _____.

25. Match the following five battles with the year in which they occurred.

26. Suppose you are the high school teacher of a sophomore English class and, as a part of your course objectives, you had the students write a one-act play. You would be most interested in the students' ability to _____ the material to which they had been exposed.

A. Comprehend.
B. Translate.
C. Synthesize.
D. Evaluate.

27. Defining educational objectives in terms of behavior that one would accept as evidence that the objective is being attained is necessary because:

A. It forces teachers and administrators to thoroughly define what their objectives are.
B. It eliminates semantic confusion by those who are attempting to utilize the objectives.
C. Both A. and B.
D. Neither A. nor B.

28. Students in a seventh grade social studies class are asked to translate "E Pluribus Unum" and tell what it means. The teacher is testing the students' ability to _____the material to which they have been exposed.

A. Know.
B. Apply.
C. Comprehend.
D. Evaluate.

29. Education objectives might best be formulated using operational definitions (those which are observable). The best example of an operational definition of "thirst" would be:

A. Dryness in the mouth.
B. A need for a drink.
C. Going without water.
D. Going without water for 12 hours.

30. - 35. Listed below are statements of instructional objectives. On the answer sheet, mark:

A. If the statement identifies the behavior to be demonstrated by the student.
B. If the statement indicates a standard of acceptable performance.
C. If the statement does both A. and B.
D. If the statement does neither A. nor B.

30. To know well the Gettysburg Address.

31. To teach the current production of the s sound.

32. To write the names of important historical persons under their pictures.

33. To influence art teachers to utilize the services of the visual aids department.

34. To correctly identify eighteen of twenty conic section equations.

35. To copy a list of twenty words and change them from singular to plural form.

36. Using Bloom's method of classifying educational goals, how would you classify question 29?

A. Knowledge.
B. Application.
C. Comprehension.
D. Synthesis.

37. As a motivating factor to encourage our students, it might be wise to include items in a test with an item difficulty index of

A. .85
B. .50
C. .15
D. 0

38. If you want your test to have content validity, it would probably be best to give which of the following types of tests?

A. multiple choice
B. short answer
C. essay
D. either A. or B.

39. Which procedure would probably be the best teaching strategy?

A. Grade tests in class after all students have taken the test.
B. Return test papers the day after the test with all errors corrected.
C. Discuss the questions on a test with a class the day after the test.
D. Let the students know, in advance of a test, that the marks will not count as part of the final grade in the course.

40. True-false is to select as Essay is to

A. objective.
B. subjective.
C. supply.
D. valid.

41. Suppose you are a third grade arithmetic teacher and wished students to be proficient at working problems on making change for purchases. What kind of test questions would probably best measure whether or not the student has reached the objective?

A. Essay
B. Short answer
C. Multiple choice
D. True-false

42. Scoring of which of the following tests is likely to be <u>least</u> objective?

A. True-false
B. Multiple choice
C. Matching
D. Completion

43. The "matching" type of test item is

A. difficult to score validly.
B. more objective than the multiple choice item.
C. less objective than the completion item.
D. a variation of the multiple choice item.

44. In a test item such as: The general in command of all allied forces invading France in World War II was: (a) Eisenhower, (b) MacArthur, (c) Montgomery, (d) Washington. What would be the best change to make in this item?

A. Write the stem as a question.
B. Rewrite it as a completion item.
C. Replace "Washington" with "Patton".
D. Give each general's first name.

45. Which of the following is not an advantage that an objective test has over an essay test?

A. Economy of scoring.
B. Less time is needed to construct the test.
C. Test results can be made available to the students more rapidly.
D. More adequate content sampling.

46. Which of the following scores would be most meaningful without further information about the group that took the test?

A. 23 items correct in an English test of 40 items.
B. 35 words per minute in a typing test.
C. 30 items wrong in an algebra test of 50 items.
D. Omitted 10 items in each of the English and algebra tests.

47. A raw score of 72 on a test means

A. the student got 72 correct out of 100 items.
B. the student passed the test with a "D".
C. 72% of the students scored below this student.
D. the student got a score of 72.

48. In which of the following instances is a teacher most justified in requiring all students to make test scores of 75 percent or better?

A. The class is composed of above average students.
B. The questions are essay rather than objective.
C. The questions measure knowledge of essentials.
D. The pupils have had ample time to prepare for the test.

49. - 52. Which "specific determiner" does each of the following multiple choice questions most obviously violate?

A. Overlapping items determiner.
B. Opposites determiner.
C. Technical terminology determiner.
D. Synonomous distractors determiner.

49. The mean of a test is

A. the average score.
B. the score that appears most frequently.
C. equal to the sum of the squares.
D. called homoscedasticity.

50. The average of test scores (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) is

A. less than 9.
B. less than 8.
C. less than 7.
D. less than 6.

51. John Kennedy was

A. a president of the U. S.
B. not a president of the U. S.
C. a secretary of state.
D. attorney-general of the U. S.

52. Lyndon Johnson is

A. president of the U. S.
B. Secretary of State.
C. vice-president of the U. S.
D. the person who will become president if the current president dies.

53. - 57. Consider each set of the following questions. If A is the better question, mark A on the answer sheet. If B is the better question, mark B on the answer sheet.

53. A. John Kennedy was _____.
B. John Kennedy was
1. the 9th president of the U. S.
2. the 20th president of the U. S.
3. the 30th president of the U. S.
4. the 35th president of the U. S.

54. True - False question

A. Not one of the presidents of the United States was unworthy of the office.
B. All of the presidents of the United States were worthy of the office.

55. True - False question

A. Earth is the most important planet in the solar system.
B. Earth is one of the planets in the solar system.

56. A. E Pluribus Unum means _____ _____ _____.
B. E Pluribus Unum means _____.

57. Matching

A.	_____1.	Civil War	1.	1861
	_____2.	World War I	2.	1941
	_____3.	World War II	3.	1917
	_____4.	Eisenhower	4.	General in World War II
B.	_____1.	Civil War	1.	1941
	_____2.	World War I	2.	1861
	_____3.	World War II	3.	1917

58. Consider the following scores:

20
19
19
19
18
15
15
15
15
15
15
14
13
12
10
10
10
10
10
9

Suppose you planned to give 10% A's, 20% B's, 40% C's, 20% D's, 10% F's. What score should represent the lowest B?

A. 19
B. 18
C. 15
D. Either 15 or 18

75

59. A third grade teacher has as an objective "that the student shall define the word tree." Which of the following test questions will best measure whether her students have reached the objective?
Question 1) What does the word "tree" mean?
Question 2) A woody plant generally over ten feet tall is a _____.
Question 3) True or false: A tree is a woody plant that is generally over ten feet tall.

A. Question 1.
B. Question 2.
C. Question 3.
D. Both questions 1 and 2 measure the objective equally well.

60. Using Bloom's method of classifying education goals, how would you classify question 3 in the above test question 59?

A. Knowledge
B. Application
C. Comprehension
D. Evaluation

APPENDIX B

List of Participants

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